## Abstract of the Disclosure

A system and method for optimizing a series of traces to be executed by a processing core is disclosed. The lines of a trace are sent to an optimizer each time they are sent to a processing core to be executed. Runtime information may be collected on a line of a trace each time that trace is executed by a processing core. The runtime information may be used by the optimizer to better optimize the micro-operations of the lines of the trace. The optimizer optimizes a trace each time the trace is executed to improve the efficiency of future iterations of the trace. Most of the optimizations result in a reduction of the number of μops within the trace. The optimizer may optimize two or more lines at a time in order to find more opportunities to remove μops and shorten the trace. The two lines may be alternately offset so that each line has the maximum allowed number of micro-operations.